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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/649,203	08/27/2003	Eungjoon Park	01770.0002-US-01	5146
22865	7590	06/03/2005	EXAMINER	
ALTERA LAW GROUP, LLC 6500 CITY WEST PARKWAY SUITE 100 MINNEAPOLIS, MN 55344-7704			TRAN, TAN N	
			ART UNIT	PAPER NUMBER
			2826	

DATE MAILED: 06/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/649,203

Applicant(s)

PARK ET AL.

Examiner

TAN N. TRAN

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on amendment filed on 05/16/05.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 5-7 and 14-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 8-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

  
**Minhloan Tran**  
**Primary Examiner**  
**Art Unit 2826**

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4,8-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuo et al. (6,365,449) in view of Oyama (6,013,552).

With regard to claims 1,2,8,11, Kuo et al. discloses a nonvolatile memory cell comprising a semiconductor substrate 22; a first doped region 24 disposed in the semiconductor substrate 22; a second doped region 26 disposed in the semiconductor substrate 22 and spaced apart from the first doped region 24, a channel region being defined in the semiconductor substrate 22 between the first and second doped regions (24,26); a floating gate 14 disposed over a first part C1 of the channel region and insulated therefrom by a first dielectric 12, the first dielectric 12 being a tunnel dielectric and the floating gate 14 having a top and a sidewall; and a polysilicon layer 18 serves as a control gate wherein the polysilicon layer 18 having first, second, and third sections (18B, 18C, 18D) respectively disposed upon the top, first sidewall, and the second sidewall of the floating gate 14, the second section 18C of the polysilicon layer 18 being insulated from the

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sidewall of the floating gate 14 by a second dielectric 16, disposed over a second part C2 of the channel adjacent the first doped region 24, and insulated from the second part C2 of the channel by the first and second dielectric layers (12,16) the third section 18A of the polysilicon layer 18 being disposed over a third part C3 of the channel adjacent the second doped region 26 and insulated from the third part C3 of the channel by the first and second dielectric layers (12,16). (Note see previous attachment #1, figs. 1A,1B of Kuo et al.).

Kuo et al. does not disclose the control gate being part of a continuous word line that extends over the first and second doped regions.

However, Oyama discloses the control gate 10 being part of a continuous word line that extends over the first and second doped regions (6,9). (Note 54-57, column 3; lines 15-20, column 1, figs. 2A-2E of Oyama).

Therefore, it would have been obvious to one of ordinary skill in the art to form the Kuo et al.'s device having the control gate being part of a continuous word line that extends over the first and second doped regions such as taught by Oyama in order to program data to all the memory cells.

With regard to claim 3, Kuo et al. discloses the first section 18B of the polysilicon layer 18 is insulated from the top of the floating gate 14 by the second dielectric layer 16. (Note see previous attachment #1, figs. 1A,1B of Kuo et al.).

With regard to claim 4, Kuo et al. discloses the floating gate 14 has an additional sidewall; and the polysilicon layer 18 further has a third section 18A disposed upon the additional sidewall of the floating gate 14, and insulated therefrom by the second dielectric layer 16. (Note see previous attachment #1, figs. 1A,1B of Kuo et al.).

With regard to claims 9,10, Kuo et al. discloses the first section 18B of the polysilicon layer 18 is insulated from the top of the floating gate 14 by the second dielectric layer 16; the second section 18C of the polysilicon layer 18 is further disposed over the first doped region 24 and is insulated therefrom by the first and second dielectric layer (12,16); and the third section 18A of the polysilicon layer 18 is further disposed over the second doped region 26 and is insulated therefrom by the first and second dielectric layers (12,16). (Note see previous attachment #1, figs. 1A,1B of Kuo et al.).

With regard to claims 12,13, Kuo et al. discloses the polysilicon layer 18 serves as the control gate and the floating gate 14 comprise polysilicon; the first section 18B of the polysilicon layer 18 is separated from the top of the floating gate 14 by oxide-nitride-oxide insulating layer 16 wherein the insulating layer 16 serves as an inter-poly dielectric layer; the second section 18C of the polysilicon layer 18 is separated from the first sidewall of the floating gate 14 by oxide-nitride-oxide insulating layer 16, and is separated from the second part C2 of the channel by the tunnel oxide 12 and oxide-nitride-oxide insulating layer 16; and the third section 18A of the polysilicon layer 18 is separated from the second sidewall of the floating gate 14 by oxide-nitride-oxide insulating layer 16, and is separated from the third part C3 of the channel by the tunnel oxide 12 and oxide-nitride-oxide insulating layer 16. (Note see previous attachment #1, figs. 1A,1B of Kuo et al.).

#### **Response to Amendment**

2. Applicant's arguments with respect to claims 1-4,8-13 have been considered but are moot in view of the new ground(s) of rejection.

### **Conclusion**

3. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

4. Any inquiry concerning this communication or earlier communication from the examiner should be directed to Tan Tran whose telephone number is (571) 272-1923. The examiner can normally be reached on M-F 8:30AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (571) 272-1915. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for after final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

TT

May 2005